

### Claims

1-27. (cancelled)

28. (currently amended) ~~A method~~The method of claim 47, further comprising:

~~operating a transistor device in a common base or common gate configuration;~~

~~coupling two or more input signal pathways to a first terminal of the transistor device, wherein one of the input signal pathways is from a current source with a lowpass filter, the filter comprising active and passive components;~~

~~providing a virtual ground at the first terminal of the transistor device through a current path to the virtual ground, wherein the path is continuously uninterrupted at all frequencies; and~~

~~providing an output from a second terminal of the transistor device to~~coupling a current-dependent load to one of the outputs, wherein one of the input signal pathways is from a current source with a lowpass filter, the filter comprising active and passive components.

29. (cancelled)

30. (currently amended) ~~The method of claim 28~~47, further comprising:

~~controlling the transistor device with a servo device;~~

~~providing the a virtual ground at the first terminal of the transistor device~~through a servo device terminal; and

~~providing feedback to the servo device from the first terminal of the transistor device.~~

31. (original) The method of claim 30, wherein the servo device includes an operational

amplifier having a negative input and a positive input, and further comprising:

receiving the feedback through the negative input; and

coupling the positive input to ground.

32. (currently amended) The method of claim 28 47, wherein the first terminal corresponds to an emitter ~~emitter~~, and the second-third ~~terminal~~ terminal corresponds to a collector, ~~and the transistor device further includes a base, and which further includes~~ the method further including coupling a different transistor device to the base, the different transistor device including a ground-coupled emitter.

33. (currently amended) The method of claim 28 47, wherein the ~~current-dependent~~ load includes a laser device, and which further includes providing a control voltage to a first one of the input signal pathways and a sweep voltage to a second one of the input signal pathways.

34. (currently amended) The method of claim 28 47, wherein the ~~current-dependent~~ load includes a laser device and wherein one of the two or more input signal pathways ~~the current source~~ is from a first current source, the method further comprising:

supplying an approximately constant bias current to the transistor device from the first current source; and

providing electrical current to the laser device from a second current source.

35. (currently amended) An apparatus, comprising:  
a transistor device including a first terminal that is an emitter, a second terminal that is a base,  
and a third terminal that is a collector, said transistor device being in a common base configuration

arranged to maintain said emitter at a predefined voltage;

~~a virtual ground coupled to said emitter, wherein the virtual ground is provided by a path that is uninterrupted for all frequencies, at which the transistor is operational;~~

~~a number of two or more input signal pathways coupled to said first terminal emitter; and~~

~~a lowpass filter coupled to the second or base terminal of the transistor device; and~~

~~a current source coupled to said collector, said current source comprising at least one active component and being responsive to a signal input with one of said input signal pathways.~~

an AC output and a DC output from the third terminal of the transistor device for connection to a load, the AC output being a separate output from the DC output.

36. (currently amended) The apparatus of claim 35, wherein ~~said current source~~ one of the AC output and the DC output is coupled to a laser diode.

37. (currently amended) The apparatus of claim 35, wherein ~~said current source~~ one of the AC output and the DC output is coupled to a quantum cascade laser configuration.

38. (original) The apparatus of claim 35, further comprising an operational amplifier to control said transistor device, said operational amplifier including a negative input coupled to receive feedback from said emitter, a positive input coupled to ground, and an output configured to drive said base.

39. (original) The apparatus of claim 35, further comprising a different transistor device coupled to said base, said different transistor device including an emitter coupled to ground.

40. (original) The apparatus of claim 35, further comprising a control signal generator coupled to one of said inputs.

41. (currently amended) The apparatus of claim 35, ~~wherein the~~ further comprising a current source coupled to the emitter. is a first current source, the apparatus further comprising a second current source, said input signal pathways being coupled to a first electrical node positioned between said emitter and said second current source.

42. (currently amended) ~~A method,~~ The method of claim 47, further comprising:  
~~operating a transistor device in a common base or common gate configuration to provide~~ providing a virtual ground at a first terminal of the transistor device, wherein the virtual ground is provided by a servo device terminal, and wherein no reactive components are positioned between the first terminal of the transistor device and the servo device terminal;

~~providing a number of input signal pathways coupled to the first terminal of the transistor device,~~ wherein one of the input signal pathways is from a current source with a lowpass filter, the filter comprising active and passive components;

electrically coupling a laser device to ~~a second~~ the third terminal of the transistor device through one of the AC output and the DC output; and

controlling operation of the laser device with an input signal provided to the first terminal of the transistor device.

43. (cancelled)

44. (currently amended) The method of claim ~~42~~ 47, wherein said operating includes controlling operation of the transistor device with a servo device, the servo device receiving feedback from the first terminal.

45. (previously presented) The method of claim 42, wherein the current source is a first current source, the method further comprising:  
supplying an approximately constant bias current to the transistor device from the first current source; and  
providing electrical current to the laser device from a second current source.

46. (currently amended) The method of claim ~~42~~ 47, wherein said operating includes regulating operation of the transistor device with a different transistor device having an emitter coupled to ground, the transistor device and the different transistor device having a base connection in common.

47. (previously presented) A method, comprising:  
operating a transistor device with first, second and third terminals in a common base or common gate configuration;  
coupling two or more input signal pathways to a first terminal of the transistor device;  
coupling a lowpass filter to a second or base terminal of the transistor device; and  
providing an AC output and a DC output from a third terminal of the transistor device for connection to a load, the AC output being a separate output from the DC output.

48. (previously presented) The method of claim 47, wherein the transistor device is a first transistor device, wherein the first terminal corresponds to an emitter and the third terminal corresponds to a collector, the method further comprising coupling a second transistor device to the base, the second transistor device comprising a ground-coupled emitter.

49. (cancelled)

50. (previously presented) The method of claim 47, wherein one of the input signal pathways comprises a photodiode.